REMARKS

Claims 23, 25 and 26 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Section 102(b) rejections:

The office action rejected claims 23 and 25-26 under 35 U.S.C. § 102(b) as being anticipated by Matz et al., U.S. Patent No. 5,821,539 (hereinafter "Matz"). Applicant respectfully traverses this rejection for at least the following reasons.

The Examiner states, "Matz discloses a radiation detector such as an x-ray detector that has light-emitting properties (see column 1, lines 5-29). Additionally, the reference discloses that the detector is divided into at least two sub-electrodes as per instant claim 23 (see column 3, lines 23-33)." Applicant respectfully disagrees with the Examiner's interpretation of Matz.

At the Examiner's first cited passage, column 1, lines 5-29, Matz describes prior art radiation detectors which **indirectly** convert x-radiation to an electrical signal current. As described at column 1, lines 16-27, such indirect radiation detectors operate by first converting the x-radiation into low-energy and, in particular, visible radiation, and this visible radiation can then be detected (via a light-sensitive film or a radiation detector for visible light) and converted to a signal current.

In contrast, a **directly** converting detector is one in which x-ray energy is directly converted by photo excitation (in an absorbent semiconductor material) into an electrical signal current (column 1, lines 28-36).

Matz describes the subject of his alleged invention as providing "a directly converting radiation detector" (Summary of the Invention at column 2, lines 34-35).

Matz's goal is to provide an improved response speed in such a directly converting radiation detector (column 2, lines 36-39).

At the second of the Examiner's cited passages (column 3, lines 23-33), Matz describes an embodiment of his **directly** converting radiation detector in which a first electrode 2, as shown in Fig. 2c, is divided into two independent sub-electrodes 2a and 2b, electrically separated from one another, that can measure signal currents independently of one another (column 5, lines 31-36). Dependent on the location at which charge carrier pairs are generated in the semiconductor body of the detector due to incident radiation, one obtains a spatially (2D) resolved detection of the incident radiation (column 5, lines 39-42).

Thus, the two passages relied on by the Examiner describe two different detectors, only one of which utilizes a light-emissive device. The Examiner's first cited passage describes an indirectly converting radiation detector (column 1, lines 23-26), which includes a light-emitting device. In contrast, the sub-electrodes referred to at column 3, lines 23-33, are provided in Matz's directly converting radiation detector (see column 2, lines 34-35 and column 5, lines 30-46), which has no light-emissive device, i.e., "the x-ray energy is directly converted by photo excitation in these detectors into an electrical signal current" (column 1, lines 29-36). Thus, there is no basis to combine the cited passages.

In light the above remarks, Applicant asserts that the rejection of claims 23 and 25-26 is not supported by the cited art and withdrawal of the rejection is respectfully requested. Applicant can find no teaching in Matz regarding a detector with light-emitting properties that utilizes sub-electrodes as recited in Applicant's claims.

While Applicant maintains that the foregoing deficiency is sufficient to require withdrawal of the rejection, Applicant will respond to the Examiner's further assertion that in Matz, "Figure 2c shows the sub-electrodes that have a fusible link (electrical connection) whereby the current of each sub-electrode can be determined independently of the other sub-electrodes (also see column 3, lines 29-30)." Applicant respectfully disagrees with the Examiner's statement and disagrees with the Examiner's interpretation of Matz.

One embodiment of Matz's directly converting detector is shown in Fig. 1, in which semiconductor body 1 of thickness "d" has on one surface a first electrode 2 and an injector electrode 3 (which may be arranged in any of the patterns shown in Figs. 2a-2c), and on the opposite surface a second electrode 4. In Matz, "the underlying idea of the invention is to compensate the residual charges adhering to imperfections in the semiconductor by an additional injection of oppositely charged carriers. This is realized in the inventive detector by applying an injector electrode on a principal surface of the semiconductor body in addition to the first and second conventional electrodes, respectively applied on opposite principal surfaces of the semiconductor body." (column 2, lines 40-47). As described beginning at the top of column 5, electrons are injected into the semiconductor body 1 by the injector electrode 3, which electrons flow along the indicated current paths 10 to the second electrode 4. This injected (secondary) dark current is independent of the incident, external radiation. The positively charged traps in the interior of the conductor body 1 which lie in the region of these current paths 10 are discharged by this injected dark current and are thus rendered ineffective. Furthermore, Matz relates the spacing between the injector electrode 3 and first

electrode 2, to the volume percentage of the semiconductor body 1 that is covered by the injected dark current - more specifically, the more finally divided the structure and the less space between the injector electrode 3 and first electrode 2, the greater the volume percentage of body 1 that is covered by the injected dark current (see column 5, lines 1-16).

Figs. 2a, 2b and 2c are described as alternative inter-digital electrode arrangements of electrodes 2,3 on the one surface of the semiconductor body 1. However, as described, the purpose of the structure and spacing between electrodes 2 and 3 relates to distribution of the dark current path 10 in a corresponding volume percentage of body 1, in order to render positively charged traps (defects) in body 1 ineffective.

Fig. 2c is further described as illustrating the use of two independent sub-electrodes 2a and 2b electrically separated from one another that can measure signal currents independently of one another (column 5, lines 31-36). As a result, Matz states, "dependent on the location at which charge carrier pairs are generated due to incident radiation, one thus obtains a spatially (2D) resolved detection of the incident radiation." (column 5, lines 39-42).

In light of the above remarks, the Examiner's second and third cited passages describing the sub-electrodes 2a and 2b as electrically separated from one another in order to measure the incident radiation 12 at different locations, are not related to any fusible electrical connection or link for neutralizing charged defects in the detector body. Rather, it is the independent injected (secondary) dark current, caused by injector electrode 3 injecting electrodes into semi-conductor body 1 to flow along current paths

10 to the second electrode 4, that discharges and renders ineffective the positively charged traps in the body (column 5, lines 1-16). These are two different functions, and as expressly stated in Matz, "this injected (secondary) dark current is independent of the incident, external radiation," the later of which is measured by the independent sub-electrodes 2a and 2b are thus not part of the dark current discharge mechanism.

Applicant can find no teaching in Matz of "a fusible link adapted to break...to electrically isolate the respective sub-electrode" as recited in Applicant's claims. An embodiment of Applicant's claimed invention is described in Fig. 6 and at pages 9 and 21-22. Fig. 6 shows a patterning of an anode layer 304 (of Fig. 5) in which a two-dimensional array of small sub-electrodes 320 are arranged to form an array of parallel rows and columns (see Applicant's specification at page 21). Each of the sub-electrodes 320 is connected to those sub-electrodes directly adjacent to it in the same row and column by a fusible link 322. In the described embodiment, under normal operating conditions there is very little voltage dropped across the fusible link but if subject to an anomalously high current (caused, for example, by a defect in the portion of the organic layers situated between the cathode and the sub-electrode), the fusible link 322 "will overheat and blow thereby isolating the defective site from the rest of the backlight (light-emissive device), with a resulting improvement in the performance of the device" (see Applicant's specification at the paragraph bridging pages 21-22). In the disclosed embodiment, the sub-electrodes of the anode and the fusible link can be made of the same material, such as indium-tin oxide (ITO). Alternatively, they can be made of different materials. As a further alternative, the cathode may additionally or

alternatively be formed of sub-electrodes connected by fusible links (see Applicant's specification at page 22).

Thus, Applicant's claim 23 recites in substantial part "a light-emissive device comprising...at least the first electrode layer comprises a plurality of sub-electrodes, each sub-electrode being connected to each of any sub-electrodes directly surrounding it via a fusible link, each fusible link adapted to break when subject to a current exceeding a specified value to electrically isolate the respective sub-electrode from the other sub-electrodes." In contrast, Matz fails to teach or suggest any such structure.

Since the rejection has been shown to be unsupported for the independent claims, a further discussion with regard to the dependent claims is not necessary at this time. However, Applicant notes that the ordered array of sub-electrodes recited in dependent claim 25 are connected via the fusible link; this is not taught or suggested in Matz for at least the reasons that the x-ray detector with sub-electrodes in Matz does not utilize light-emitting properties, and the sub-electrodes do not include a fusible link. Applicant further disagrees with the Examiner's statement that in Matz "the arrangement of the sub-electrodes will inherently allow the light-emission to be continuous across the whole area as per instant claim 26." As previously indicated, Matz's directly converting radiation detector does not utilize the properties of light-emission. Matz does not teach a detector utilizing light-emitting properties that has at least two sub-electrodes and a fusible link, as suggested by the Examiner.

In view of the foregoing remarks, Applicant submits that the application is in condition for allowance and notice to that effect is respectfully requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated:

By: ______________________
Therese Hendricks
Reg. No. 30,389